

(1/12/90)

ER PROGRAM DATA ASSESSMENT
SUMMARY REPORT FORM

Batch No. 8911L395 Site Background Characterization
Laboratory R.F. Weston-Lionville No. of Samples/Matrix 6/Water
SOW # 10/86 (Rev. 2/88) Reviewer Org. TechLaw, Inc.
Sample Numbers TB110289008, SW098008, SW092008, SW094008, SW093008, SW095008

Data Assessment Summary

	VOA	Comments
1. Holding Times	<u>A</u>	<u>Action Item 1</u>
2. GC/MS Tune/Instr. Perf.	<u>V</u>	
3. Calibrations	<u>A</u>	<u>Action Item 2,3; Comments 1,2</u>
4. Blanks	<u>V</u>	
5. Surrogates	<u>V</u>	
6. Matrix Spike/Dup.	<u>X</u>	<u>Comment 3</u>
7. Other QC	<u>V</u>	
8. Internal Standards	<u>V</u>	
9. Compound Identification	<u>V</u>	
10. System Performance	<u>X</u>	<u>Comment 4</u>
11. Overall Assessment	<u>A</u>	<u>Data acceptable with qualifications.</u>

V = Data had no problems.

A = Data acceptable but qualified due to problems.

R = Data rejected.

X = Problems, but do not affect data.

Data Quality: Data contained in this batch were reviewed and found to be acceptable with qualifications. Acceptable,
qualified data may be used provided that individual values impacted by the "Action Items" listed below are appropriately flagged.
(Refer to attached Results Summary Tables.)

REVIEWED FOR CLASSIFICATION/CONTROL

By [Signature]

Date 10/28/91

Action Items: 1) Non-detected aromatic compounds in all six samples are estimated and undetected (UJ) because holding times were exceeded.

2) In the initial calibration Vinyl Acetate, Carbon Disulfide, Methylene Chloride and Chloroethane had %RSDs exceeding 50%. All non-detects for these 4 compounds in all six samples are rejected (R).

3) All non-detected results for Acetone in all samples are rejected(R) because Acetone's %D in the continuing calibration exceeded 50%. (Carbon Disulfide, Methylene Chloride and Chloroethane also had %Ds exceeding 50% in the continuing calibration.)

Comments: 1) In the continuing calibration 4-Methyl-2-pentanone and Tetrachloroethene had %Ds exceeding 25%. No action is required because there were no positive results for these compounds.

2) In the continuing calibration the %Ds for Chloroethane, Methylene Chloride, Acetone, and Carbon Disulfide exceeded 50 %. No action is necessary because results are already qualified due to initial calibration problems.

3) No data is provided for the Matrix spike and Matrix spike duplicate nor is there any indication that they were analyzed.

4) There is a large peak present in all chromatograms (including calibrations) which the lab has indicated as a lab contaminant. This peak may have caused interference with compounds which have similar elution times.

Note: Data Summary Tables are attached.

Jill Gaschler
Reviewer Signature

1-12-90
Date

SITE NAME: Background Characterization

CLP VOLATILE ORGANIC ANALYSIS: Low Water

ANALYTICAL RESULTS (ppb)

Sample Location	VBLK	TB110289008	SW098008	SW092008	SW094008	SW093008	SW095008	
Sample Number		11/2/89	11/2/89	11/2/89	11/2/89	11/2/89	11/2/89	
Sampling Date								
Remarks								
Volatiles								
Compound	ug/L (ppb)	DQ	DQ	DQ	DQ	DQ	DQ	DQ
Chloromethane	10	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V
Bromomethane	10	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V
Vinyl chloride	10	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V
Chloroethane	10	10 U R	10 U R	10 U R	10 U R	10 U R	10 U R	10 U R
Methylene chloride	5	5 U R	5 U R	5 U R	5 U R	5 U R	5 U R	5 U R
Acetone	10	10 U R	10 U R	10 U R	10 U R	10 U R	10 U R	10 U R
Carbon disulfide	5	5 U R	5 U R	5 U R	5 U R	5 U R	5 U R	5 U R
1,1-Dichloroethene	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
1,1-Dichloroethane	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
1,2-Dichloroethene (Total)	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
Chloroform	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
1,2-Dichloroethane	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
2-Butanone	10	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V
1,1,1-Trichloroethane	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
Carbon tetrachloride	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
Vinyl acetate	10	10 U R	10 U R	10 U R	10 U R	10 U R	10 U R	10 U R
Bromodichloromethane	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
1,2-Dichloropropane	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
cis-1,3-Dichloropropene	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
Trichloroethene	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
Dibromochloromethane	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
1,1,2-Trichloroethane	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
Benzene	5	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A
trans-1,3-Dichloropropene	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
Bromoforn	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
4-Methyl-2-pentanone	10	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V
2-Hexanone	10	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V	10 U V
Tetrachloroethene	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
1,1,2,2-Tetrachloroethane	5	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V	5 U V
Toluene	5	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A
Chlorobenzene	5	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A
Ethylbenzene	5	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A
Styrene	5	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A
Xylenes (Total)	5	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A	5 U A
Total Organic	0	0	0	0	0	0	0	0
Concentration (ppb)								

U Indicates the compound was not detected above the Required Quantitation Limit.

J Quantitation is approximate due to limitations identified during the quality control review.

E Exceeds calibration range, dilute & reanalyze.

CROL Contract Required Quantitation Limit in Micrograms per Liter (ug/L), Parts per billion (ppb).

DQ Data Qualifier

V Valid

A Acceptable with qualifications

R Rejected

100682015407

WESTON Analytics Use Only



RFW 21-21-001/A-12/88

SW094008	less than 300 pc / 4	all others less than 50 pc / 2
SW095008	" " 200 pc / 4	

ER DEPARTMENT DATA ASSESSMENT
SUMMARY REPORT FORM

Batch No. 8911L395 Site Surface Water
Laboratory Roy F. Weston - Lionville No. of Samples/Matrix 10/Water
SOW # 7/87 Reviewer Org. TechLaw, Inc.

Sample Numbers SW098008 (total and soluble), SW092008 (total and soluble),
SW094008 (total and soluble), SW093008 (total and soluble), SW095008 (total and soluble)

Data Assessment Summary

	ICP	AA	Hg	CN	Comments
1. Holding Times	<u>V</u>	<u>V</u>	<u>V</u>	<u>V</u>	
2. Calibrations	<u>A</u>	<u>V</u>	<u>V</u>	<u>V</u>	<u>Action Item 1</u>
3. Blanks	<u>A</u>	<u>V</u>	<u>V</u>	<u>V</u>	<u>Action Items 2-7</u>
4. ICP Interference Check Sample	<u>A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>Action Items 8-9</u>
5. Lab Control Sample Results	<u>A</u>	<u>V</u>	<u>V</u>	<u>V</u>	<u>Action Item 10</u>
6. Duplicate Sample Results	<u>V</u>	<u>V</u>	<u>V</u>	<u>V</u>	
7. Matrix Spike Sample Results	<u>A</u>	<u>A</u>	<u>V</u>	<u>V</u>	<u>Action Items 11-16</u>
8. Method of Standard Addition	<u>N/A</u>	<u>V</u>	<u>N/A</u>	<u>N/A</u>	
9. Serial Dilution	<u>A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>Action Item 17</u>
10. Sample Verification	<u>X</u>	<u>X</u>	<u>V</u>	<u>V</u>	<u>Comments 1-2</u>
11. Other QC	<u>V</u>	<u>V</u>	<u>V</u>	<u>V</u>	
12. Overall Assessment	<u>A</u>	<u>A</u>	<u>V</u>	<u>V</u>	<u>Data valid, or acceptable with qualifications</u>

V = Data had no problems.

A = Data acceptable but qualified due to problems.

R = Data rejected.

X = Problems, but do not affect data.

N/A = Not applicable.

Data Quality: Data contained in this batch were reviewed and found to be valid, or acceptable with qualifications. Acceptable,
qualified data may be used provided that individual values impacted by the "Action Items" listed below are appropriately flagged.
(Refer to attached Results Summary Tables).

Action Items: 1) The Zinc values for SW098008 (total and soluble), SW092008 (total and soluble), and SW093008 (total) are estimated (J) because the CRDL check sample recovery criteria were not met.

2) All Aluminum values except SW094008 (total) and SW093008 (soluble) are estimated and undetected (UJ) because Aluminum values >IDL were found in the blanks.

3) All Antimony non-detects are rejected (R) because of negative bias indicated in the blanks.

4) The Antimony values for SW092008 (soluble), SW094008 (total and soluble), and SW095008 (soluble) are estimated and undetected (UJ) because Antimony values >IDL were found in the blanks.

5) The Chromium values for SW098008 (soluble), SW092008 (total), and SW093008 (total and soluble) are estimated and undetected (UJ) because Chromium values >IDL were found in the blanks.

6) The Potassium values for SW098008 (total and soluble), SW092008 (total and soluble), and SW093008 (total and soluble) are estimated and undetected (UJ) because Potassium values >IDL were found in the blanks.

7) All Copper values are estimated and undetected (UJ) because Copper values >IDL were found in the blanks.

8) The Manganese, Zinc, and Beryllium values for SW094008 (total and soluble) and SW095008 (total and soluble) are estimated (J) because of possible Calcium interference indicated in the interference check sample.

9) The Silver values for SW094008 (total and soluble) and SW095008 (total and soluble) are rejected (R) because of possible Calcium interference indicated in the interference check sample.

10) All Strontium values are estimated (J) because the laboratory control sample recovery criteria were not met.

11) All Cesium and Thallium values are rejected (R) because the pre-digestion matrix spike recovery criteria were not met.

12) All Lead values are estimated and undetected (UJ) because the pre-digestion matrix spike recovery criteria were not met.

13) The Tin values for SW094008 (total and soluble) and SW095008 (total and soluble) are estimated (J) because the pre-digestion matrix spike recovery criteria were not met.

Action Items: (cont) 14) The Lithium values for SW094008 (total and soluble), SW095008 (total and soluble), and SW098008 (soluble) are estimated (J) and all remaining Lithium values are rejected (R) because the pre-digestion matrix spike recovery criteria were not met.

15) All Silver values except SW094008 (total and soluble) and SW095008 (total and soluble) are estimated and undetected (UJ) because the pre-digestion matrix spike recovery criteria were not met.

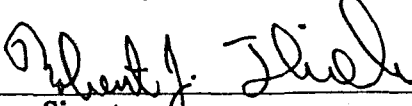
16) The Selenium values for SW098008 (total), SW092008 (total), SW094008 (total and soluble), and SW095008 (soluble) are estimated (J) because the pre-digestion matrix spike recovery criteria were not met.

17) All Calcium values are estimated (J) because the ICP serial dilution recovery criteria were not met.

Comments: 1) The IDL for Cesium exceeds the CRDL.

2) The soluble Sodium value for SW094008 is significantly greater than the total value.

Note: Data Summary Tables are attached.


Reviewer Signature

7/6/90
Date

ANALYTICAL RESULTS (ug/L)

Sample Location		SW089008		SW082008		SW082008		SW084008		SW083008		SW085008		SW085008									
Sample Number		SW089008	SW082008	SW082008	SW082008	SW084008	SW083008	SW083008	SW085008	SW085008	SW085008	SW085008	SW085008	SW085008	SW085008								
Sample Date		11/02/89	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89								
Remarks		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total								
Inorganic																							
DL																							
Analyte	ug/L	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ								
Aluminum	Al	200	122 U	A	117 U	A	232 U	A	145 U	A	435	V	318 U	A	104 U	A	2380	V	410 U	A	309 U	J	A
Antimony	Sb	60	22.0 U	R	22.0 U	R	22.0 U	R	31.3 U	A	42.7 U	A	34.1 U	A	22.0 U	R	22.0 U	R	22.0 U	R	39.8 U	J	A
Arsenic	As	10	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	V
Barium	Ba	200	183	V	179	V	114	V	109	V	175	V	190	V	80.3	V	99.1	V	187	V	188	V	V
Beryllium	Be	5	1.0 U	V	1.0 U	V	1.0 U	V	1.0 U	V	2.0 J	A	1.3 J	A	1.0 U	V	1.0 U	V	1.1 J	A	1.5 J	A	A
Cadmium	Cd	5	3.0 U	V	3.0 U	V	3.0 U	V	3.0 U	V	3.0 U	V	3.0 U	V	3.0 U	V	3.0 U	V	3.0 U	V	3.0 U	V	A
Calcium	Ca	5000	41800 J	A	43100 J	A	86400 J	A	83800 J	A	335000 J	A	348000 J	A	82400 J	A	50900 J	A	334000 J	A	337000 J	J	A
Cesium	Cs	1000	2600 U	R	2600 U	R	2600 U	R	2600 U	R	2600 U	R	2600 U	R	2600 U	R	2600 U	R	2600 U	R	2600 U	R	R
Chromium	Cr	10	2.0 U	V	3.3 U	A	2.0 U	A	2.0 U	V	2.0 U	V	2.0 U	V	2.3 U	A	7.6 U	A	2.0 U	V	2.0 U	V	V
Cobalt	Co	50	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	V
Copper	Cu	25	8.9 U	A	10.9 U	A	14.2 U	A	13.0 U	A	28.0 U	A	28.3 U	A	10.9 U	A	18.2 U	A	25.7 U	A	25.9 U	J	A
Iron	Fe	100	288	V	44.0 U	V	224	V	46.9	V	220	V	99.4	V	51.3	V	3510	V	215	V	98.5	V	V
Lead	Pb	5	3.0 U	A	3.0 U	A	3.0 U	A	3.0 U	A	3.0 U	A	3.0 U	A	3.0 U	A	3.0 U	A	3.0 U	A	3.0 U	A	A
Lithium	Li	100	100 U	R	102 J	A	100 U	R	100 U	R	513 J	A	577 J	A	100 U	R	100 U	R	570 J	A	589 J	J	A
Magnesium	Mg	5000	41000	V	42400	V	20000	V	19800	V	92200	V	98400	V	11200	V	10800	V	96200	V	96000	V	V
Manganese	Mn	15	67.5	V	61.4	V	143	V	135	V	28.9 J	A	27.0 J	A	204	V	287	V	30.7 J	A	25.6 J	J	A
Mercury	Hg	0.2	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	V
Molybdenum	Mo	200	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	V
Nickel	Ni	40	7.0 U	V	7.0 U	V	7.0 U	V	7.0 U	V	9.2	V	14.6	V	7.0 U	V	7.0 U	V	8.7	V	7.0	V	V
Potassium	K	6000	9000 U	A	9450 U	A	4270 U	A	3910 U	A	111000	V	124000	V	3340 U	A	4120 U	A	134000	V	128000	V	V
Selenium	Se	5	2.5 J	A	2.0 U	V	2.7 J	A	2.0 U	V	6.0 J	A	7.0 J	A	2.0 U	V	2.0 U	V	4.0 U	V	6.0 J	A	A
Silver	Ag	10	3.0 U	A	3.0 U	A	3.0 U	A	3.0 U	A	3.0 U	R	3.0 U	R	3.0 U	A	3.0 U	A	3.0 U	R	3.0 U	R	R
Sodium	Na	5000	188000	V	198000	V	52000	V	54200	V	743000	V	1620000	V	47100	V	41900	V	821000	V	789000	V	V
Strontium	Sr	200	528 J	A	541 J	A	537 J	A	531 J	A	2780 J	A	2940 J	A	323 J	A	304 J	A	2840 J	A	2980 J	J	A
Thallium	Tl	10	4.0 U	R	4.0 U	R	4.0 U	R	4.0 U	R	4.0 U	R	4.0 U	R	4.0 U	R	4.0 U	R	4.0 U	R	4.0 U	R	R
Tin	Sn	200	100	V	100 U	V	100 U	V	100 U	V	129 J	A	132 J	A	100 U	V	100 U	V	130 J	A	135 J	A	A
Vanadium	V	50	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	6.0 U	V	5.0 U	V	8.5	V	5.0 U	V	5.0 U	V	V
Zinc	Zn	20	22.9 J	A	18.2 J	A	23.8 J	A	15.4 J	A	86.9 J	A	59.3 J	A	28.5 U	A	123	V	83.6 J	A	56.5 J	J	A
Cyanide	CN	10	10.0 U	V	NR		10.0 U	V	NR		10.0 U	V	NR		10.0 U	V	NR		10.0 U	V	NR		

Estimated by the Laboratory

U Indicates the compound was not detected above the Instrument Quantitation Limit

Quantitation is approximate due to limitations identified during the quality control review

DL Detection Limit in Micrograms per Liter ($\mu\text{g/L}$)

N/A Not reported

DQ Data Qualifier

W. V. Vaidya

Q17A ☐ Acceptable with modifications

IA Protected

130849184

BATCH NO. 8911L395 for

- The following ICP elements were run on an alternate date:

L395A/eg15j

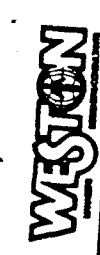
Stackville

900 Green Valley Way
Natick, MA 01900

WESTON Analytics Use Only
89111395

Custody Transfer Record/Lab Work Request

Lot 110289001



Client: Rockwell (Rocky Flats)
Work Order: 2029 33 04
Date Rec'd: 11/16/89 Date Due: 12/18/89
RFW Contact: Janel Bergman
Client Contact/Phone: (303) 980 6800

WA Use Only Lab ID	Client ID/Description
1	TR110289008
2	SW098008
3	SW092008
4	SW094008
5	SW093008
6	SW095008
7	SW098008
8	SW092008
9	SW094008
10	SW093008
11	SW095008

Refrigerator#	#Type Container	Volume	Preservative	ANALYSES REQUESTED	Matrix	Date Collected	Relinquished by	Received by	Date	Time
1	4	4	4	4	4	4	4	4	4	4
2	4	4	4	4	4	4	4	4	4	4
3	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4
5	4	4	4	4	4	4	4	4	4	4
6	4	4	4	4	4	4	4	4	4	4
7	4	4	4	4	4	4	4	4	4	4
8	4	4	4	4	4	4	4	4	4	4
9	4	4	4	4	4	4	4	4	4	4
10	4	4	4	4	4	4	4	4	4	4
11	4	4	4	4	4	4	4	4	4	4

Item/Reason	Relinquished by	Received by	Date	Time
1	SW098008	SW098008	11/16/89	13:30
2	SW092008	SW092008	11/16/89	13:30
3	SW094008	SW094008	11/16/89	13:30
4	SW093008	SW093008	11/16/89	13:30
5	SW095008	SW095008	11/16/89	13:30

Special Instructions	1 - vial	2 - bna	3 - pest/peb	4 - cystic
5 - filtered tel metals Mo, Sr, Cs, Li, Pb				
6 - unfiltered tel metals Mo, Sr, Cs, Li, Pb				

WESTON Analytics Use Only

Samples Were:
1 Shipped or Hand-Delivered
NOTES:

2 Ambient or Chilled
NOTES:

3 Received Broken/Leaking (Improperly Sealed)
Y
NOTES:

4 Properly Preserved
N
NOTES:

5 Received Within Holding Times
Y
NOTES:

COC Tape Was:
1 Present on Outer Package
Y
2 Unbroken on Outer Package
Y
3 Present on Sample
Y
4 Unbroken on Sample
Y
NOTES: 11/16/89

COC Record Was:
1 Present Upon Receipt of Samples
Y
Discrepancies Between Sample Labels and COC Record?
Y
NOTES:

SW094008 less than 300 ppi / 1 all others
SW095008 less than 300 ppi / 1 all others